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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,290	10/25/2001	Yuzuru Suzuki	SZI 2 0018	8147

7590

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EXAMINER

NGUYEN, HANH N

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/004,290

Applicant(s)

SUZUKI ET AL.

Examiner

Nguyen N Hanh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers


- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ..


BURTON S. MULLINS
PRIMARY EXAMINER

DETAILED ACTION

Remarks

1. In view of amendments, the Examiner withdraws the rejection under 35 U.S.C 112, second paragraph, to claims 2 and 4 (now cancelled).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saji et al.

Regarding claim 2, Saji et al. show a stepping motor (Fig. 1) in which a stator unit is composed of a pair of stator sub-assemblies integrally attached to each other in a back to back manner, each stator sub-assembly having a plurality of pole teeth (15 and 15') formed at its inner circumference and housing a coil inside thereof (17 and 17'), and a rotor unit (6) is rotatably disposed with a small gap from the plurality of pole teeth and has multiple magnetic poles (5) formed on a circumference thereof, the multiple magnetic poles of the rotator unit being formed by magnetizing the rotator unit alternately with an S pole and an N pole in a circumferential direction (Fig. 6 and 7).

Saji et al. fails to show the stepping motor wherein while a magnetic pole width consisting of the S pole and the width of the N pole in each pair are different from each other by a constant electrical angle ranging from 15 degrees to 50 degrees. It would

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have been obvious at the time the invention was made to a person having an ordinary skill in the art to build a rotor for the stepping motor wherein the width of the S pole and the width of the N pole in each pair are different from each other by a constant electrical angle ranging from 15 degrees to 50 degrees, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saji et al. in view of Sakamoto.

Regarding claim 3, Saji et al. disclose a stepping motor (Fig. 1) comprising: a stator unit comprising a pair of stator sub assemblies integrally attached to each other in a back to back manner, each of the stator sub-assemblies including: a plurality of pole teeth (15 and 15') formed at an inner circumference of the sub-assembly and housing a coil (17 and 17') inside thereof; a rotor unit (6) rotatably disposed with a small gap from the plurality of pole teeth and has multiple magnetic poles formed on a circumference thereof, the multiple magnetic poles being formed by magnetizing the rotor unit alternately with an S pole and an N pole in a circumferential direction. Saji et al. fail to show one pair of the S pole and the N pole in which the width of the S pole is set to be smaller than the width of the N pole and another pair of the S pole and the N pole in which the width of the S pole is set to be larger than the width of the N pole are alternately arranged.

However, Sakamoto discloses a brushless motor wherein one pair of the S pole and the N pole of the rotor in which the width of the S pole is set to be smaller than the

width of the N pole and another pair of the S pole and the N pole in which the width of the S pole is set to be larger than the width of the N pole are alternately arranged (Fig. 14) for the purpose of magnetizing the rotor (Col. 2, lines 20-25).

Since Saji et al. and Sakamoto are in the same field of endeavor, the purpose disclosed by Sakamoto would have been recognized in the pertinent art of Saji et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Saji et al. by making a rotor with one pair of the S pole and the N pole in which the width of the S pole is set to be smaller than the width of the N pole and another pair of the S pole and the N pole in which the width of the S pole is set to be larger than the width of the N pole are alternately arranged as taught by Sakamoto for the purpose of magnetizing the rotor.

Response to Arguments

4. Applicant's arguments filed 5/23/03 have been fully considered but they are not persuasive. Applicant's argument is on the ground that "the discovery of the particular limitation in claim 2 (the width of the S pole and the width of the N pole in each pair to be different from each other by a constant electrical ranging from 15 degrees to 50 degrees) produce new and unexpected result and the reference that the Examiner relies on, Saji, does not recognize the optimized parameter to be result-effective variable. Moreover, the citation of Sakamoto in claim 3 is not proper because the brushless motor disclosed by Sakamoto is of different type from the motor of present invention". The Examiner respectfully disagrees with the Applicant. The enlarged width of the N pole changes the mechanical degrees associate with it and inherently changes the electrical

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degrees as described in page 4, lines 2-9 of the translation (enclosed please find a copy of translation). It is the result effective variable. Saji recognizes the impact of the variation of mechanical degrees (or electrical degrees) of the permanent magnet on detent torque (inherently cause cogging torque) as described in page 3 and page 7 of the translation. Every motor is optimized to have minimum cogging torque, therefore, it would be within a level of one having ordinary skill in the art to find out the best working range as described in page 9 of the specification. Regarding claim 3, Sakamoto also aims at reducing cogging torque as shown in Fig. 6 and 7. Moreover, Saji also teaches that the S pole can be greater than N pole (page 4, lines 2-9). For the reasons explained above, the rejection is still deemed proper.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information on How to Contact USPTO

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (703)305-3466. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703)308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1782.

HNN

August 20, 2003


BURTON S. MULLINS
PRIMARY EXAMINER